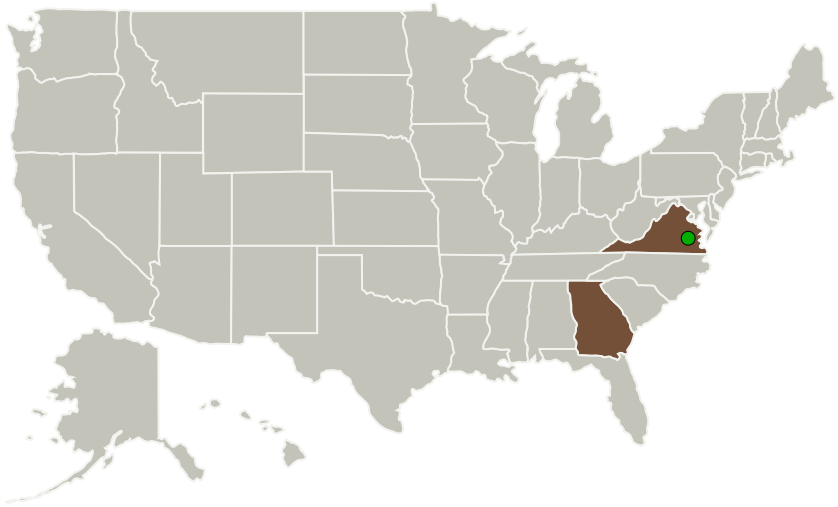
Multi-Agent Management System (MAMS) for Air-Launched, Unmanned Vehicles, Phase I

Completed Technology Project (2013 - 2013)

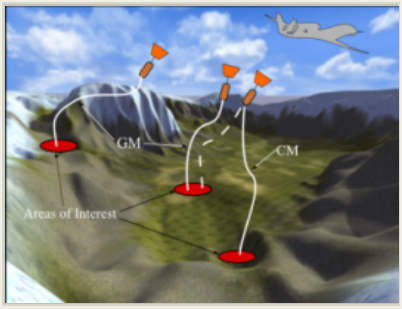
Project Introduction

The main goal of this work is to design, implement, and demonstrate a guidance and mission planning toolbox for air-launched, unmanned systems, such as guided dropsondes, sonobuoys, or surveillance aircraft, with the primary goal of enabling users to more effectively achieve mission goals by enabling multi-agent interaction and cooperation. Typical missions that will benefit from the MAMS include those where multiple unmanned vehicles are launched from one or more mother aircraft: for example atmospheric research missions making use of many guided dropsondes, missions distributing a fleet of sonobuoys, or surveillance missions requiring multiple UAVs to patrol a given area. As new vehicles are introduced to the environment (launched from the mother aircraft), or as new areas of interest arise, the MAMS will utilize a distributed network method for adjusting the fleet vehicles' trajectories to maximize the mission effectiveness.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Area-I, Inc.	Lead Organization	Industry	Kennesaw, Georgia
Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia



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Primary U.S. Work Locations	
Georgia	Virginia

Project Transitions

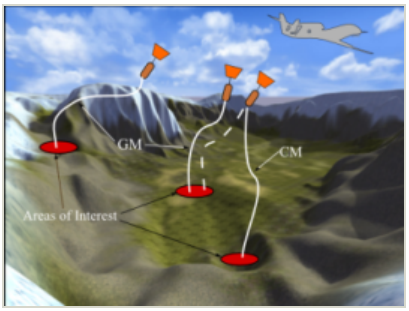
May 2013: Project Start

November 2013: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/138329)*

Images



Project Image
Multi-Agent Management System (MAMS) for Air-Launched, Unmanned Vehicles
(https://techport.nasa.gov/image/126215)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Area-I, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

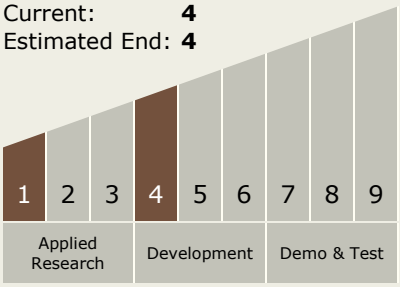
Carlos Torrez

Principal Investigator:

Daniel Kuehme

Technology Maturity (TRL)

Start: **1**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX04 Robotic Systems
  - TX04.4 Human-Robot Interaction
    - TX04.4.1 Multi-Modal and Proximate Interaction

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System